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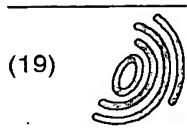
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(72) Inventors:
• Sakurai, Kazuhiro,
c/o Toyota Jidosha Kabushiki K.
Toyota-shi, Aichi-ken, 471-8571 (JP)
• Watanabe, Takashi,
c/o Toyota Jidosha Kabushiki K.
Toyota-shi, Aichi-ken, 471-8571 (JP)

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(71) Applicant: TOYOTA JIDOSHA KABUSHIKI
KAISHA
Aichi-ken 471-8571 (JP)

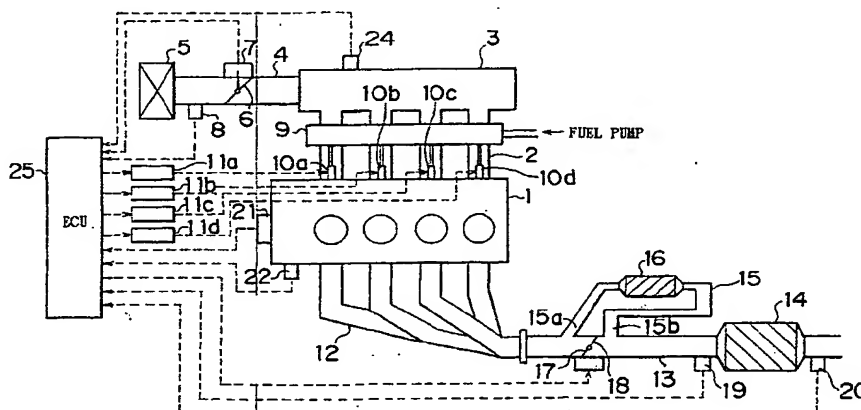
(74) Representative:
Pellmann, Hans-Bernd, Dipl.-Ing. et al
Patentanwaltsbüro
Tiedtke-Bühling-Kinne & Partner
Bavariaring 4-6
80336 München (DE)

(54) Emission control apparatus of an internal combustion engine and method of control therefor

(57) An emission control apparatus for an internal combustion engine has a bypass passage (15) bypassing a portion of a main exhaust passage (13) located upstream of an exhaust gas-purifying catalyst device (14), an adsorbent (16) provided in the bypass passage (15), a passage switching device (17) for switching between flow of exhaust gas to the bypass passage (15) and flow of exhaust gas to the main exhaust passage (13).

(13), and a bypass flow control device (15a, 15b) for adjusting a flow that occurs through the bypass passage (15) when the unburned gas component is desorbed (released) from the adsorbent (16) so that the flow through the bypass passage (15) becomes equal to or less than a predetermined flow and assumes a proportion that is equal to or less than a predetermined proportion relative to the flow through the main exhaust passage (13).

FIG. 1





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EUROPEAN SEARCH REPORT

Application Number
EP 99 12 5576

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	PATENT ABSTRACTS OF JAPAN vol. 014, no. 436 (M-1027), 18 September 1990 (1990-09-18) & JP 02 173312 A (MAZDA MOTOR CORP), 4 July 1990 (1990-07-04)	1	F01N3/08 F01N3/20
A	* abstract * * figures 2,3 *	5	
X	PATENT ABSTRACTS OF JAPAN vol. 014, no. 013 (M-918), 11 January 1990 (1990-01-11) & JP 01 257710 A (MAZDA MOTOR CORP), 13 October 1989 (1989-10-13)	1	
A	* abstract * * figure 2 *	5-9	
A	DE 197 09 432 A (VOLKSWAGENWERK AG) 30 October 1997 (1997-10-30) * column 2, line 37 - column 5, line 16 * * figures 1,3A,3B,4 *	1,6-8,10	
A	EP 0 532 803 A (UOP INC) 24 March 1993 (1993-03-24) * abstract * * figure 1 *	1	TECHNICAL FIELDS SEARCHED (Int.Cl.7) F01N
A	EP 0 754 841 A (BAYERISCHE MOTOREN WERKE AG ;VOLKSWAGENWERK AG (DE); DAIMLER BENZ) 22 January 1997 (1997-01-22) * abstract * * figure 1 *	5,13	
A	PATENT ABSTRACTS OF JAPAN vol. 018, no. 360 (M-1634), 7 July 1994 (1994-07-07) & JP 06 093844 A (NISSAN MOTOR CO LTD), 5 April 1994 (1994-04-05) * abstract *	13	
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 2 December 2002	Examiner Ikas, G
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ON EUROPEAN PATENT APPLICATION NO.**

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02-12-2002

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 02173312	A	04-07-1990	NONE	
JP 01257710	A	13-10-1989	NONE	
DE 19709432	A	30-10-1997	DE 19709432 A1	30-10-1997
EP 0532803	A	24-03-1993	US 5051244 A EP 0532803 A1	24-09-1991 24-03-1993
EP 0754841	A	22-01-1997	DE 19526765 A1 EP 0754841 A1 JP 9032538 A	23-01-1997 22-01-1997 04-02-1997
JP 06093844	A	05-04-1994	NONE	

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